

# State of Utah

## DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF AIR QUALITY

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### Title V Operating Permit

**PERMIT NUMBER: 3500044001**

**DATE OF PERMIT: March 11, 1999**

Date of Last Revision: June 12, 2001

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This Operating Permit is issued to, and applies to the following:

**Name of Permittee:**

Murray City Power Department  
153 W 4800 S  
Murray, UT 84107

**Permitted Location:**

Electrical Generation Plant  
157 W 4800 S  
Murray, UT 84107

**UTM coordinates:** 4501957 meters Northing, 424468 meters Easting

**SIC code:** 4911

### ABSTRACT

Murray City operates the Murray City Power (MCP) Plant as a peaking, emergency and stand-by electric generation station. The annual power production varies upon the demand for peaking, emergency and stand-by needs. The power plant has four electric generators. Each generator is powered by a dual fuel internal combustion engine. Each engine has a separate stack for the exhaust emissions.

MCP has received approval to install three gas turbines, each with a peak power generating capacity of 13.5 MW. After the first gas turbine (Unit 1 GT) is commercially operational, one dual fuel generator (Unit 10 IC) will be removed from service and the remaining three dual fuel generators will only be used for stand-by purposes. After the second and third turbines are commercially operational (Units 2 GT and 3 GT) the remaining dual fuel generators (Units 7 IC, 8 IC, 9 IC) will be removed from service. The new turbines require a "new unit exemption" from the Title IV - Acid Rain Program. MCP is also installing a new 750 Kw diesel generator. MCP is a major source of CO emissions. 40 CFR 60, Subparts GG and Kb apply to this source.

UTAH AIR QUALITY BOARD

By:

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Richard W. Sprott, Executive Secretary

Prepared By:

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James Chapman

### Operating Permit History

|                            |   |  |
|----------------------------|---|--|
| 3/11/1999 - Permit issued  | Action initiated by an initial operating permit application           |  |
| 5/8/2001 -Permit modified  | Action initiated by a significant operating permit modification       | to incorporate requirements from new approval order DAQE-126-01 issued February 9, 2001. |
| 6/12/2001 -Permit modified | Action initiated by an administrative amendment (initiated by source) | to clarify the averaging time for the NOx CEM PPM limit and the CO PPM limit.            |

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**Issued under authority of Utah Code Ann. Section 19-2-104 and 19-2-109.1, and in accordance with Utah Administrative Code R307-415 Operating Permit Requirements.**

All definitions, terms and abbreviations used in this permit conform to those used in Utah Administrative Code R307-101 and R307-415 (Rules), and 40 Code of Federal Regulations (CFR), except as otherwise defined in this permit. Unless noted otherwise, references cited in the permit conditions refer to the Rules.

Where a permit condition in Section I, General Provisions, partially recites or summarizes an applicable rule, the full text of the applicable portion of the rule shall govern interpretations of the requirements of the rule. In the case of a conflict between the Rules and the permit terms and conditions of Section II, Special Provisions, the permit terms and conditions of Section II shall govern except as noted in Provision I.M, Permit Shield.

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## **Section I: GENERAL PROVISIONS**

### **I.A. Federal Enforcement.**

All terms and conditions in this permit, including those provisions designed to limit the potential to emit, are enforceable by the EPA and citizens under the Clean Air Act of 1990 (CAA) except those terms and conditions that are specifically designated as "State Requirements". (R307-415-6b)

### **I.B. Permitted Activity(ies).**

Except as provided in R307-415-7b(1), the permittee may not operate except in compliance with this permit. (See also Provision I.E, Application Shield)

### **I.C. Duty to Comply.**

- I.C.1 The permittee must comply with all conditions of the operating permit. Any permit noncompliance constitutes a violation of the Air Conservation Act and is grounds for any of the following: enforcement action; permit termination; revocation and reissuance; modification; or denial of a permit renewal application. (R307-415-6a(6)(a))
- I.C.2 It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (R307-415-6a(6)(b))
- I.C.3 The permittee shall furnish to the Executive Secretary, within a reasonable time, any information that the Executive Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Executive Secretary copies of records required to be kept by this permit or, for information claimed to be confidential, the permittee may furnish such records directly to the EPA along with a claim of confidentiality. (R307-415-6a(6)(e))

I.C.4 This permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance shall not stay any permit condition, except as provided under R307-415-7f(1) for minor permit modifications. (R307-415-6a(6)(c))

I.D. **Permit Expiration and Renewal.**

I.D.1 **This permit is issued for a fixed term of five years and expires on March 11, 2004.**  
(R307-415-6a(2))

I.D.2 Application for renewal of this permit is due by September 11, 2003. An application may be submitted early for any reason. (R307-415-5a(1)(c))

I.D.3 An application for renewal submitted after the due date listed in I.D.2 above shall be accepted for processing, but shall not be considered a timely application and shall not relieve the permittee of any enforcement actions resulting from submitting a late application. (R307-415-5a(5))

I.D.4 Permit expiration terminates the permittee's right to operate unless a timely and complete renewal application is submitted consistent with R307-415-7b (see also Provision I.E, Application Shield) and R307-415-5a(1)(c) (see also Provision I.D.2). (R307-415-7c(2))

I.E. **Application Shield.**

If the permittee submits a timely and complete application for renewal, the permittee's failure to have an operating permit will not be a violation of R307-415, until the Executive Secretary takes final action on the permit renewal application. In such case, the terms and conditions of this permit shall remain in force until permit renewal or denial. This protection shall cease to apply if, subsequent to the completeness determination required pursuant to R307-415-7a(3), and as required by R307-415-5a(2), the applicant fails to submit by the deadline specified in writing by the Executive Secretary any additional information identified as being needed to process the application. (R307-415-7b(2))

I.F. **Severability.**

In the event of a challenge to any portion of this permit, or if any portion of this permit is held invalid, the remaining permit conditions remain valid and in force. (R307-415-6a(5))

I.G. **Permit Fee.**

I.G.1 The permittee shall pay an annual emission fee to the Executive Secretary consistent with R307-415-9. (R307-415-6a(7))

I.G.2 The emission fee shall be due on October 1 of each calendar year or 45 days after the source receives notice of the amount of the fee, whichever is later. (R307-415-9(4)(a))

**I.H. No Property Rights.**

This permit does not convey any property rights of any sort, or any exclusive privilege.  
(R307-415-6a(6)(d))

**I.I. Revision Exception.**

No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit. (R307-415-6a(8))

**I.J. Inspection and Entry.**

I.J.1 Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Executive Secretary or an authorized representative to perform any of the following:

I.J.1.a Enter upon the permittee's premises where the source is located or emissions related activity is conducted, or where records are kept under the conditions of this permit.  
(R307-415-6c(2)(a))

I.J.1.b Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit. (R307-415-6c(2)(b))

I.J.1.c Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practice, or operation regulated or required under this permit.  
(R307-415-6c(2)(c))

I.J.1.d Sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with this permit or applicable requirements. (R307-415-6c(2)(d))

I.J.2 Any claims of confidentiality made on the information obtained during an inspection shall be made pursuant to Utah Code Ann. Section 19-1-306. (R307-415-6c(2)(e))

**I.K. Certification.**

Any application form, report, or compliance certification submitted pursuant to this permit shall contain certification as to its truth, accuracy, and completeness, by a responsible official as defined in R307-415-3. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. (R307-415-5d)

**I.L. Compliance Certification.**

I.L.1 Permittee shall submit to the Executive Secretary an annual compliance certification, certifying compliance with the terms and conditions contained in this permit, including emission limitations, standards, or work practices. This certification shall be submitted no later than September 30,

2001 and that date each year following until this permit expires. The certification shall include all the following (permittee may cross-reference this permit or previous reports): (R307-415-6c(5))

- I.L.1.a The identification of each term or condition of this permit that is the basis of the certification;
- I.L.1.b The identification of the methods or other means used by the permittee for determining the compliance status with each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the monitoring and related recordkeeping and reporting requirements in this permit. If necessary, the permittee also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information;
- I.L.1.c The status of compliance with the terms and conditions of the permit for the period covered by the certification, based on the method or means designated in Provision I.L.1.b. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred; and
- I.L.1.d Such other facts as the Executive Secretary may require to determine the compliance status.
- I.L.2 The permittee shall also submit all compliance certifications to the EPA, Region VIII, at the following address or to such other address as may be required by the Executive Secretary: (R307-415-6c(5)(d))

Office of Enforcement, Compliance and Environmental Justice  
(mail code 8ENF)  
EPA, Region VIII  
999 18th Street, Suite 300  
Denver, CO 80202-2466

**I.M. Permit Shield.**

- I.M.1 Compliance with the provisions of this permit shall be deemed compliance with any applicable requirements as of the date of this permit, provided that:
  - I.M.1.a Such applicable requirements are included and are specifically identified in this permit, or (R307-415-6f(1)(a))
  - I.M.1.b Those requirements not applicable to the source are specifically identified and listed in this permit. (R307-415-6f(1)(b))
- I.M.2 Nothing in this permit shall alter or affect any of the following:



- I.M.2.a The emergency provisions of Utah Code Ann. Section 19-1-202 and Section 19-2-112, and the provisions of the CAA Section 303. (R307-415-6f(3)(a))
- I.M.2.b The liability of the owner or operator of the source for any violation of applicable requirements under Utah Code Ann. Section 19-2-107(2)(g) and Section 19-2-110 prior to or at the time of issuance of this permit. (R307-415-6f(3)(b))
- I.M.2.c The applicable requirements of the Acid Rain Program, consistent with the CAA Section 408(a). (R307-415-6f(3)(c))
- I.M.2.d The ability of the Executive Secretary to obtain information from the source under Utah Code Ann. Section 19-2-120, and the ability of the EPA to obtain information from the source under the CAA Section 114. (R307-415-6f(3)(d))
- I.N. **Emergency Provision.**
- I.N.1 An “emergency” is any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. (R307-415-6g(1))
- I.N.2 An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the affirmative defense is demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- I.N.2.a An emergency occurred and the permittee can identify the causes of the emergency. (R307-415-6g(3)(a))
- I.N.2.b The permitted facility was at the time being properly operated. (R307-415-6g(3)(b))
- I.N.2.c During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in this permit. (R307-415-6g(3)(c))
- I.N.2.d The permittee submitted notice of the emergency to the Executive Secretary within two working days of the time when emission limitations were exceeded due to the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. This notice fulfills the requirement of Provision I.S.2.c below. (R307-415-6g(3)(d))
- I.N.3 In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof. (R307-415-6g(4))
- I.N.4 This emergency provision is in addition to any emergency or upset provision contained in any other section of this permit. (R307-415-6g(5))

**I.O. Operational Flexibility.**

Operational flexibility is governed by R307-415-7d(1).

**I.P. Off-permit Changes.**

Off-permit changes are governed by R307-415-7d(2).

**I.Q. Administrative Permit Amendments.**

Administrative permit amendments are governed by R307-415-7e.

**I.R. Permit Modifications.**

Permit modifications are governed by R307-415-7f.

**I.S. Records and Reporting.**

**I.S.1 Records.**

**I.S.1.a** The records of all required monitoring data and support information shall be retained by the permittee for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records, all original strip-charts or appropriate recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. (R307-415-6a(3)(b)(ii))

**I.S.1.b** For all monitoring requirements described in Section II, Special Provisions, the source shall record the following information, where applicable: (R307-415-6a(3)(b)(i))

**I.S.1.b.1** The date, place as defined in this permit, and time of sampling or measurement.

**I.S.1.b.2** The date analyses were performed.

**I.S.1.b.3** The company or entity that performed the analyses.

**I.S.1.b.4** The analytical techniques or methods used.

**I.S.1.b.5** The results of such analyses.

**I.S.1.b.6** The operating conditions as existing at the time of sampling or measurement.

**I.S.1.c** Additional record keeping requirements, if any, are described in Section II, Special Provisions.

**I.S.2 Reports.**

- I.S.2.a Monitoring reports shall be submitted to the Executive Secretary every six months, or more frequently if specified in Section II. All instances of deviation from permit requirements shall be clearly identified in the reports. (R307-415-6a(3)(c)(i))
- I.S.2.b All reports submitted pursuant to Provision I.S.2.a shall be certified by a responsible official in accordance with Provision I.K of this permit. (R307-415-6a(3)(c)(i))
- I.S.2.c The Executive Secretary shall be notified promptly of any deviations from permit requirements including those attributable to upset conditions as defined in this permit, the probable cause of such deviations, and any corrective actions or preventative measures taken. **Prompt, as used in this condition, shall be defined as written notification within 7 days.** Deviations from permit requirements due to unavoidable breakdowns shall be reported in accordance with the provisions of R307-107. (R307-415-6a(3)(c)(ii))
- I.S.3 Notification Addresses.
- I.S.3.a All reports, notifications, or other submissions required by this permit to be submitted to the Executive Secretary are to be sent to the following address or to such other address as may be required by the Executive Secretary:
- Utah Division of Air Quality  
P.O. Box 144820  
Salt Lake City, UT 84114-4820  
Phone: 801-536-4000
- I.S.3.b All reports, notifications or other submissions required by this permit to be submitted to the EPA should be sent to one of the following addresses or to such other address as may be required by the Executive Secretary:
- |  |   |
|--|---|
| <p><u>For annual compliance certifications</u></p> <p>Environmental Protection Agency, Region VIII<br/>Office of Enforcement, Compliance and<br/>Environmental Justice (mail code 8ENF)<br/>999 18th Street, Suite 300<br/>Denver, CO 80202-2466</p> | <p><u>For reports, notifications, or other<br/>correspondence related to permit modifications,<br/>applications, etc.</u></p> <p>Environmental Protection Agency, Region VIII<br/>Office of Partnerships &amp; Regulatory Assistance<br/>Air &amp; Radiation Program (mail code 8P-AR)<br/>999 18th Street, Suite 300<br/>Denver, CO 80202-2466<br/>Phone: 303-312-6440</p> |
|--|---|
- I.T. **Reopening for Cause.**
- I.T.1 A permit shall be reopened and revised under any of the following circumstances:
- I.T.1.a New applicable requirements become applicable to the permittee and there is a remaining permit term of three or more years. No such reopening is required if the effective date of the requirement is later than the date on which this permit is due to expire, unless the terms and

conditions of this permit have been extended pursuant to R307-415-7c(3), application shield. (R307-415-7g(1)(a))

- I.T.1.b The Executive Secretary or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit. (R307-415-7g(1)(c))
- I.T.1.c EPA or the Executive Secretary determines that this permit must be revised or revoked to assure compliance with applicable requirements. (R307-415-7g(1)(d))
- I.T.1.d Additional applicable requirements are to become effective before the renewal date of this permit and are in conflict with existing permit conditions. (R307-415-7g(1)(e))
- I.T.1.e Additional requirements, including excess emissions requirements, become applicable to an Title IV affected source under the Acid Rain Program. Upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into this permit. (R307-415-7g(1)(b)) To be deleted unless a Title IV source.
- I.T.2 Proceedings to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of this permit for which cause to reopen exists. (R307-415-7g(2))
- I.U. **Inventory Requirements.**
  - I.U.1 An emission inventory shall be submitted in accordance with the procedures of R307-150, Emission Inventories. (R307-150)
  - I.U.2 A Hazardous Air Pollutant Inventory shall be submitted in accordance with the procedures of R307-155, Hazardous Air Pollutant Inventory. (R307-155)
  - I.U.3 An emission statement shall be submitted in accordance with the procedures in R307-158, Emission Statement Inventory. (R307-158)
- I.V. **Title IV and Other, More Stringent Requirements**

Where an applicable requirement is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, Acid Deposition Control, both provisions shall be incorporated into this permit. (R307-415-6a(1)(b))

## **Section II: SPECIAL PROVISIONS**

### **II.A. Emission Unit(s) Permitted to Discharge Air Contaminants.**

(R307-415-4(3)(a) and R307-415-4(4))

- II.A.1       **Three 13.5 MW Gas Turbines** (designated as Unit Gas Turbines)  
Unit Description: Includes Units 1 GT, 2 GT, and 3 GT
- II.A.2       **Gas Turbine** (designated as Unit 1 GT)  
Unit Description: 13.5 MW Turbine, Natural gas only. Low NOx burners. Exempt Unit for Title IV.
- II.A.3       **Gas Turbine** (designated as Unit 2 GT)  
Unit Description: 13.5 MW Turbine, Natural gas only. Low NOx burners. Exempt Unit for Title IV.
- II.A.4       **Gas Turbine** (designated as Unit 3 GT)  
Unit Description: 13.5 MW Turbine, Natural gas only. Low NOx burners. Exempt Unit for Title IV.
- II.A.5       **Four Dual Fuel Internal Combustion Engines** (designated as Unit IC Engines)  
Unit Description: Includes Units 7 IC, 8 IC, 9 IC, and 10 IC
- II.A.6       **Dual Fuel Internal Combustion Engine** (designated as Unit 7 IC)  
Unit Description: Reciprocating IC engine burns natural gas or diesel fuel rated at 2,200 kW.
- II.A.7       **Dual Fuel Internal Combustion Engine** (designated as Unit 8 IC)  
Unit Description: Reciprocating IC engine burns natural gas or diesel fuel rated at 1,200 kW.
- II.A.8       **Dual Fuel Internal Combustion Engine** (designated as Unit 9 IC)  
Unit Description: Reciprocating IC engine burns natural gas or diesel fuel rated at 1,200 kW.
- II.A.9       **Dual Fuel Internal Combustion Engine** (designated as Unit 10 IC)  
Unit Description: Reciprocating IC engine burns natural gas or diesel fuel rated at 2,600 kW.
- II.A.10      **Emergency Generator** (designated as Unit 11)  
Unit Description: Fuel Oil #1 or #2 Only, 750 kW Emergency back-up generator.
- II.A.11      **Diesel Fuel Storage Tank** (designated as Unit 12)  
Unit Description: Two 12,000 gallon diesel fuel tanks. 40 CFR 60 Subpart Kb applies.
- II.A.12      **Misc. Fuel Tanks** (designated as Unit 13)  
Unit Description: Includes one 2000 gallon diesel fuel tank and two tanks for Murray City vehicles: one diesel and one gasoline. No unit specific requirements.

### **II.B. Requirements and limitations.**

The following emission limitations, standards, and operational limitations apply to the permitted facility as indicated: (R307-415-6a(1))

#### **II.B.1       Conditions on permitted source (Source-wide):**

- II.B.1.a       Emissions of NOx shall be no greater than 98.9 tons per 12-month period. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.1.a.1       **Monitoring:**       The emissions shall be determined on a rolling 12-month total. Within the

first 20 days of each month a new 12-month total shall be calculated using data from the previous 12 months.

**For the internal combustion reciprocating engines:**

Emissions testing shall be performed using a portable analyzer. For the testing with the portable analyzer a Conditional Test method CTM-034 protocol or an equivalent method shall be used. Equivalency shall be determined by the Executive Secretary.

The first working day an engine is used in each calendar quarter, the permittee shall conduct the emission testing to determine the emission factor for dual fuel mode. If an engine is not used during a quarter, no emission testing is required for that engine. Any quarter in which any one engine is fired on straight fuel oil for more than 24 hours total, the permittee shall conduct the emission testing on that engine to determine the emission factor for fuel oil mode.

The number of kilowatt-hours generated by each engine shall be monitored continuously by a kilowatt-hour meter and recorded on a monthly basis. Emission factor shall be derived from the most recent emission test results.

Emissions from the internal combustion reciprocating engines shall be the sum of emissions from each engine and shall be calculated using the following equation:

Previous month emissions = (kW-hrs produced in previous month) x (most recent emission factor in lbs/kW-hr) x (1 ton/2000 lbs)

12-month rolling emissions from IC engines (tons/12-month period) = The sum of the previous 12 months emissions from IC engines

The emission factor shall be determined by following equation:

Emission factor (lbs/kW-hr)  
$$= (1.194 \times 10^{-7}) \times (\text{PPM}_v \text{ NO}_x) \times \text{flowrate (scf/hr)} / (\text{engine output at test condition (kW)})$$

where scf means standard cubic feet at standard condition of 68 degree F and 14.7 psia.

The test protocol and test report shall be maintained and made available to the Executive Secretary upon request.

**For the Gas Turbines:**

The owner/operator shall install, calibrate, maintain, and operate Continuous Emissions Monitoring System (CEMS) in accordance with the most recent CEM plan that has been approved by the Executive Secretary and in accordance with UAC, R307-170.

Emissions from the gas turbine(s) shall be calculated using the following equations and CEMS data for NO<sub>x</sub>:

Daily Rate Calculation:

X\* = average hourly emission rate for each turbine in lbs/hr.

T\* = time each turbine ran during the day in hours

D = daily average output of pollutant in lbs/day

Time when turbine is not operating shall not be included in the average.

$$D = X \times T$$

Monthly Rate Calculation:

M = monthly output of pollutant in lbs/month

M = The summation of D over the previous month

Annual Rate Calculation:

A = annual output of pollutant in tons per rolling 12-month period

A = the summation of M (over the previous 12-months)/ 2000 lbs/ton

\* CEMS recorded data.

Emissions totals from the natural gas turbine(s), four (4) internal combustion dual fuel engines and backup engine generator should be kept in table format, listing month, operating hours, and emissions, for each individual engine. CEMS record keeping shall be performed in accordance with UAC, R307-170.

The CEMS shall operate continuously and CEMS breakdowns shall be recorded. During periods of CEMS breakdown, the average emission rate in units of lbs/kW-hr, for each turbine during the week prior to the breakdown, shall be used in the calculation of annual emission rate. If the breakdown exceeds two weeks, the emission rate used in the calculation for the third week shall be 110% of the prior emission rate. The emission rate for all the downtime in excess of three weeks shall be 120% of the prior emission rate.

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| II.B.1.a.2 | <b>Recordkeeping:</b> | The permittee shall keep the records specified in R307-170-8 and any additional records required by provision I.S.1 of this permit. These records shall be maintained in accordance with Provision I.S.1. |
| II.B.1.a.3 | <b>Reporting:</b>     | The permittee shall comply with the reporting provisions in R307-170-9 and any additional reporting provisions contained in Section I of this permit.   |
| II.B.1.b   |                       | Sulfur content of the fuel oil combusted shall be not greater than 0.5 percent by weight. [Authority granted under R307-110(SIP) and R307-401-6(1) [BACT]; condition originated in DAQE-126-01]           |
| II.B.1.b.1 | <b>Monitoring:</b>    | Compliance with this limitation shall be determined either by testing each  |

fuel delivery for the sulfur content or by inspection of the fuel sulfur-content specifications provided by the vendor in purchase records. Sulfur content in either instance shall be determined in accordance with ASTM-4294, or equivalent.

- II.B.1.b.2                      **Recordkeeping:**      Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.
- II.B.1.b.3                      **Reporting:**              There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.1.c                      The owner/operator shall submit to the Executive Secretary an emergency plan by April 10, 2001. The plan shall identify what control/production measures the owner/operator shall implement when an emergency episode is declared by the Executive Director of the Department of Environmental Quality. Specific emission reduction measures shall be outlined for all three levels (Alert, Warning, Emergency). The values for the various levels are listed in R307-105, UAC. Also see 40 CFR, Part 51, Subpart H (40 CFR 51.150 to 153) and Appendix L. The emergency plan shall be approved by the Executive Secretary. The Alert Level actions to be taken should be curtailment of all unnecessary activities causing air pollution. The other two levels of actions should be a progressive curtailment of production and activities causing pollution, to the point of complete shutdown of operations. [Authority granted under R307-105; condition originated in DAQE-126-01]
- II.B.1.c.1                      **Monitoring:**              Records of the day, time period, and duration of each emergency episode shall be maintained as described in Provision I.S.1 of this permit. The permittee shall also record the emission reduction measures taken according to the plan. If an emergency plan has been submitted, a copy of the emergency plan shall be kept on site.
- II.B.1.c.2                      **Recordkeeping:**          Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.
- II.B.1.c.3                      **Reporting:**              There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.1.d                      The permittee shall submit a New Unit Exemption form for the gas turbines by the end of the first calendar year for which the exemption is to apply. [Authority granted under 40 CFR 72.7; condition originated in DAQE-126-01]
- II.B.1.d.1                      **Monitoring:**              Records required for this permit condition will serve as monitoring.
- II.B.1.d.2                      **Recordkeeping:**          The permittee shall keep a record showing that the form has been submitted to the Utah Division of Air Quality and shall keep a copy of the form on site.
- II.B.1.d.3                      **Reporting:**              There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.1.e                      At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any permitted plant equipment, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited



to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All installations and facilities authorized by this permit shall be adequately and properly maintained. Maintenance records shall be maintained while the plant is in operation. All pollution control equipment shall be installed, maintained, and operated properly. Instructions from the vendor or established maintenance practices that maximize pollution control shall be followed. All necessary equipment control and operating devices, such as pressure gauges, amp meters, volt meters, flow rate indicators, temperature gauges, continuous emissions monitoring systems, etc., shall be installed, operated properly and easily accessible to compliance inspectors. A copy of all manufacturers' operating instructions for pollution control equipment and pollution emitting equipment shall be kept on site. These instructions shall be available to all employees who operate the equipment and shall be made available to compliance inspectors upon request. Maintenance records shall be made available to the Executive Secretary or Executive Secretary's representative upon request.. [Authority granted under R307-401-5; condition originated in DAQE-126-01]

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| II.B.1.e.1 | <b>Monitoring:</b>    | A maintenance log that documents prescribed operation and maintenance actions shall be maintained. Unscheduled maintenance and actions to correct breakdowns and malfunctions shall be documented with a problem description, corrective action, and equipment performance following repair  |
| II.B.1.e.2 | <b>Recordkeeping:</b> | Permittee shall document activities performed to assure proper operation and maintenance. Records shall be maintained in accordance with Provision I.S.1 of this permit.   |
| II.B.1.e.3 | <b>Reporting:</b>     | There are no reporting requirements for this provision except those specified in Section I of this permit.   |
| II.B.1.f   |                       | If a continuous program of construction, installation, modification, relocation or establishment is not completed or proceeding eighteen months after the issuance date of the subject approval order, the Executive Secretary may revoke the subject approval order. [Authority granted under R307-401-11; condition originated in DAQE-126-01]   |
| II.B.1.f.1 | <b>Monitoring:</b>    | Records required for this permit condition will serve as monitoring.   |
| II.B.1.f.2 | <b>Recordkeeping:</b> | If applicable, the permittee shall maintain a copy of the notification required by this permit condition in accordance with Provision I.S.1 of this permit.  |
| II.B.1.f.3 | <b>Reporting:</b>     | In addition to the reporting requirements specified in Section I of this permit, the permittee shall notify the Executive Secretary in writing eighteen months after the issuance date of the subject approval order if construction, installation, modification, relocation or establishment is not complete. The notification shall document the status of construction, installation, modification, relocation or establishment and provide a schedule for installation, modification, relocation or establishment. |
| II.B.1.g   |                       | Visible emissions shall be no greater than 20 percent opacity unless otherwise specified in this permit. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-126-01]   |
| II.B.1.g.1 | <b>Monitoring:</b>    | A visual observation of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. The individual is not required to be a certified visible emissions observer (VEO). If any visible emissions are   |

observed, an opacity determination of that emission unit shall be performed by a certified VEO in accordance with 40 CFR 60, Appendix A, Method 9 within 24 hours of the initial observation.

II.B.1.g.2                      **Recordkeeping:**      Results of opacity observations shall be recorded and maintained as described in Provision S.1 in Section I of this permit.

II.B.1.g.3                      **Reporting:**              There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.2                      **Conditions on Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

II.B.2.a                      Emissions of NO<sub>x</sub> from the gas turbines shall be no greater than 15.2 lb/hr (30 day rolling average), 25 ppmdv (24 hour average, 15% O<sub>2</sub>, dry), and 94 ppmdv (1 hour average, 15% O<sub>2</sub>, dry). [Authority granted under 40 CFR 60 (Subpart GG) & R307-401-6(1) [BACT]; condition originated in 40 CFR 60 (Subpart GG) & DAQE-126-01]

II.B.2.a.1                      **Monitoring:**              The initial stack testing shall be performed as specified here:

(a) Frequency. Initial compliance testing shall be performed in accordance with the 40 CFR 60 Subpart GG. The initial test date shall be performed within 60 days after achieving the maximum production rate at which the affected facility will be operated and in no case later than 180 days after the start up of a new emission source. After the initial test, emissions shall be monitored by a Continuous Emission Monitor following the most recently approved CEM plan.

(b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.

(c) Sample Point The emission sample point shall conform to the requirements of 40 CFR 60, Appendix A, Method 20. In addition, Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.

(d) Methods

(1) 40 CFR 60, Appendix A, Method 20 shall be used to determine the nitrogen oxides and oxygen concentrations;

(2) 40 CFR 60, Appendix A, Method 20 shall be used to determine volumetric flow rate;

(3) Fuel-bound nitrogen content shall be assumed to be 0 wt%, in accordance with EPA guidance document EMTIC GD-009 dated 3/12/90;

To determine mass emission rates (lb/hr, etc.), the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by

the Executive Secretary to give the results in the specified units of the emission limitation. (origin: 40 CFR 60.335 and R307-401-6 (BACT))

- II.B.2.a.2                      **Recordkeeping:**    Records required for this permit condition shall be maintained as described in Provision I.S.1 of this permit.
- II.B.2.a.3                      **Reporting:**        There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.2.b                        Emissions of CO shall be no greater than 16.85 lb/hr and 50 ppm<sub>dv</sub> (1 hour average, 15% O<sub>2</sub>, dry) for each turbine. [Authority granted under R307-110(SIP) and R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.2.b.1                      **Monitoring:**        Stack testing shall be performed as specified here:
- (a) Frequency. After the initial stack test\*, the unit shall be tested at least once every three years. Tests may also be required at the direction of the Executive Secretary if the source is suspected to be in violation.
- (b) Notification. At least 30 days before the test, the source shall notify the Executive Secretary of the date, time, and place of testing and provide a copy of the test protocol. The source shall attend a pretest conference if determined necessary by the Executive Secretary.
- (c) Sample Point. The emission sample point shall conform to the requirements of 40 CFR 60, Appendix A, Method 20. In addition, Occupational Safety and Health Administration (OSHA) approved access shall be provided to the test location.
- (d) Methods.
- (1) 40 CFR 60, Appendix A, Method 10 shall be used to determine CO emissions;
- (2) 40 CFR 60, Appendix A, Method 20 shall be used to determine volumetric flow rate.
- (e) Calculations. To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary to give the results in the specified units of the emission limitation. In addition, ppm values shall be corrected to 15% oxygen.
- \*The initial test date shall be performed within 60 days after achieving the maximum production rate at which the affected facility will be operated and in no case later than 180 days after the start up of a new emission source. (origin: R307-401-6 (BACT))
- II.B.2.b.2                      **Recordkeeping:**    Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.

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| II.B.2.b.3 | <b>Reporting:</b>     | There are no reporting requirements for this provision except those specified in Section I of this permit.   |
| II.B.2.c   |                       | Visible emissions shall be no greater than 10 percent opacity. [Authority granted under R307-401-6(1) (BACT); condition originated in DAQE-126-01]   |
| II.B.2.c.1 | <b>Monitoring:</b>    | Records required for this permit condition will serve as monitoring.   |
| II.B.2.c.2 | <b>Recordkeeping:</b> | <p>In lieu of monitoring via visible emission observations, the permittee shall keep one of the following sets of records for each affected emission unit, as applicable:</p> <ul style="list-style-type: none"> <li>(1) Documentation that the emission unit can only burn natural gas and/or liquified petroleum gas;</li> <li>(2) Documentation that the fuels other than natural gas and/or liquified petroleum gas cannot be supplied to the emission unit without modification of the fuel supply system; or</li> <li>(3) Fuel bills or fuel meter readings that demonstrate only natural gas and/or liquified petroleum gas are combusted in the emission unit.</li> </ul> <p>The permittee shall keep a log which includes the location and description of each affected emission unit. For each affected emission unit the log shall include the type of records that will be used in lieu of monitoring via visible emission observations. If fuel bills or fuel meter readings will be used in lieu of monitoring via visible emission observations, the permittee shall review fuel bills or fuel meter readings once per quarter and record in the log the types of fuel combusted. The records and log required by this condition shall be maintained in accordance with Provision I.S.1 of this permit.</p> |
| II.B.2.c.3 | <b>Reporting:</b>     | There are no reporting requirements for this provision except those specified in Section I of this permit.   |
| II.B.2.d   |                       | Sulfur content of any fuel combusted shall be no greater than 0.05 percent by weight The permittee may develop a custom schedule for monitoring sulfur content.. [Authority granted under 40 CFR 72.7 and 40 CFR 60 (Subpart GG); condition originated in 40 CFR 72.7(a)(3)]   |
| II.B.2.d.1 | <b>Monitoring:</b>    | In lieu of monitoring sulfur content testing, fuel usage shall be monitored to demonstrate that only natural gas is used as fuel. (origin: 40 CFR 72.7(d)(1))  |
| II.B.2.d.2 | <b>Recordkeeping:</b> | Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.  |
| II.B.2.d.3 | <b>Reporting:</b>     | There are no reporting requirements for this provision except those specified in Section I of this permit.   |
| II.B.2.e   |                       | The permittee shall comply with all applicable requirements of 40 CFR 60 Subpart A. [Authority granted under 40 CFR 60 (Subpart A); condition originated in 40 CFR 60 (Subpart GG)]  |
| II.B.2.e.1 | <b>Monitoring:</b>    | The permittee shall comply with the monitoring requirements of 40 CFR 60.8(a), (b), (c), (e) and (f), and 60.11(a). (origin: 40 CFR 60 Subpart A)  |

- II.B.2.e.2                      **Recordkeeping:**    The permittee shall comply the recordkeeping requirements of provision I.S.1 of this permit and any additional recordkeeping requirements of 40 CFR 60.7(b), and 60.7(f). (origin: 40 CFR 60 Subpart A)
- II.B.2.e.3                      **Reporting:**            The permittee shall comply with the reporting requirements in Section I of this permit and the reporting and notification requirements of 40 CFR 60.4, 60.6(b), 60.7(a), 60.8(a) and (d), 60.15, and 60.19. (origin: 40 CFR 60 Subpart A)
- II.B.3                            **Conditions on Four Dual Fuel Internal Combustion Engines (Unit IC Engines):**
- II.B.3.a                        Visible emissions shall be no greater than 10 percent opacity except for 15 minutes at start-up and 15 minutes shutdown and during allowed straight fuel oil use. When straight fuel oil is used, visible emissions shall be no greater than 20 percent opacity except for operation not exceeding 3 minutes in any hour. [Authority granted under R307-110(SIP) and R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.3.a.1                      **Monitoring:**            A 40 CFR Part 60, Appendix A, Method 9 test shall be conducted semiannually to determine the compliance with the 10 percent opacity limit. When a period of straight fuel oil use exceeds 24 hours, a 40 CFR Part 60, Appendix A, Method 9 test shall be conducted at least once during each period to determine compliance with the 20 percent opacity limit.
- II.B.3.a.2                      **Recordkeeping:**        Results of opacity observations shall be recorded and maintained as described in Provision S.1 in Section I of this permit.
- II.B.3.a.3                      **Reporting:**             There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.3.b                        The permittee shall use natural gas as the primary fuel in all of the dual fuel engines. Distillate fuel oil #1 or #2, or a combination of #1 and #2, may be used only during a 15-minute start-up and 15-minute shut-down period; backup fuel during periods of natural gas curtailment; for maintenance firings; for break in firing; system electrical power outages; and as pilot fuel. Pilot fuel is used to ignite the gaseous portion of the fuel charge. Natural gas curtailment is defined as period when the natural gas provider/supplier imposes a curtailment or interruption of service, and the curtailment is involuntary and beyond the control of the permittee. [Authority granted under R307-110(SIP) and R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.3.b.1                      **Monitoring:**            An operation log shall be used to record the engine running time during start-up, shut-down, natural gas curtailment, maintenance firing, break-in firing, system electrical power outages, and normal operation.
- II.B.3.b.2                      **Recordkeeping:**        Results of monitoring shall be maintained as described in Provision I.S.1 of this permit.
- II.B.3.b.3                      **Reporting:**             There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.3.c                        The permittee shall use the internal combustion reciprocating engines as internal peaking units until one gas turbine is operational and thereafter shall only use them as stand-by units. The permittee shall remove from service Unit 10 IC when the first gas turbine is commercially operational and shall

remove from service the remaining three IC engines when all three gas turbines are commercially operational (can provide electric power to the grid). [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-126-01]

- II.B.3.c.1                    **Monitoring:**        Records required for this permit condition will serve as monitoring.
- II.B.3.c.2                    **Recordkeeping:**    Records shall be kept as to when each gas turbine becomes commercially operational (can provide electric power to the grid). A log of hours of operation of the IC engines shall also be kept to demonstrate the status as out of service until the IC engines have been physically removed.
- II.B.3.c.3                    **Reporting:**         There are no reporting requirements for this provision except those specified in Section I of this permit.

II.B.4                    **Conditions on Emergency Generator (Unit 11):**

- II.B.4.a                    Hours of operation shall be no greater than 30 hours per rolling 12-month period. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.4.a.1                    **Monitoring:**        An hour meter shall be used to continuously monitor the hours of operation for the affected equipment. Compliance with the limitation shall be determined on a rolling 12-month total. By the twentieth day of each month, a new 12-month total shall be calculated using data from the previous 12 months.
- II.B.4.a.2                    **Recordkeeping:**    Records of each monthly check will be maintained in accordance with Provision I.S.1 of this permit. Additionally, the record shall include the reading for each hour meter and the calculated total hours of operation for the previous twelve months.
- II.B.4.a.3                    **Reporting:**         There are no reporting requirements for this provision except those specified in Section I of this permit.
- II.B.4.b                    Visible emissions shall be no greater than 20 percent opacity. [Authority granted under R307-401-6(1) [BACT]; condition originated in DAQE-126-01]
- II.B.4.b.1                    **Monitoring:**        If an affected emission unit is operated during a semi-annual period, an opacity observation of the emission unit shall be performed in the semi-annual period that the emission unit was operated. The opacity observation can be conducted at anytime during the semi-annual period. The opacity observation shall be conducted by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9, while the emission unit is operating. If visible emissions other than condensed water vapor are observed from the emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial visual emission observation. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9.
- II.B.4.b.2                    **Recordkeeping:**    Results of opacity observations shall be recorded and maintained as described in Provision S.1 in Section I of this permit.
- II.B.4.b.3                    **Reporting:**         There are no reporting requirements for this provision except those

specified in Section I of this permit.

II.B.5            **Conditions on Diesel Fuel Storage Tank (Unit 12):**

II.B.5.a            The permittee shall keep readily accessible records showing the dimensions of the storage vessel and an analysis showing the capacity of the storage vessel. These records shall be kept for the life of the source. [Authority granted under 40 CFR 60.112b(b); condition originated in 40 CFR 60 Subpart Kb]

II.B.5.a.1            **Monitoring:**            Records required for this permit condition will serve as monitoring.

II.B.5.a.2            **Recordkeeping:**        A copy of the required records shall be maintained and made available to the Executive Secretary upon request.

II.B.5.a.3            **Reporting:**            There are no reporting requirements for this provision except those specified in Section I of this permit.

II.C.            **Emissions Trading.** (R307-415-6a(10))  
Not applicable to this source.

II.D.            **Alternative Operating Scenarios.** (R307-415-6a(9))  
Not applicable to this source.

**Section III: PERMIT SHIELD**

III.A.            A permit shield was not granted for any specific requirements.

**Section IV: ACID RAIN PROVISIONS.**

IV.A.            Insert T4 conditions here

## **REVIEWER COMMENTS**

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This operating permit incorporates all applicable requirements contained in the following documents:

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|-------------|-------------------------|
| DAQE-126-01 | dated February 09, 2001 |
| DAQE-759-98 | dated November 06, 1998 |

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**1: Comment on an item originating in Utah SIP Section IX.H.2.b.KK regarding permitted source (Source-wide):**

Modification of SIP Section IX.H.2.b.KK.3.B: Approval Order DAQE-126-01 dated February 9, 2001 incorporates the applicable requirements of Utah SIP Section IX.2.b.KK. Some rationales are reiterated here to demonstrate that SIP requirements are subsumed by the operating permit.

The first paragraph of Section IX.H.2.b.KK.3.B requires the 12-month rolling total emission inventory. The purpose of this condition is to determine whether the NOX emissions exceed 200 tons/yr. If the NOX emissions exceed 200 tons/yr, a continuous emission monitoring system shall be installed. In the operating permit, MCPD must submit a plan to install CEMS on the gas turbines by April 9th, 2001 and CEMS must be online before any of the gas turbines are commercially operational. The new AO also limits NOx emissions from the entire plant to 98.9 t/yr.

The second paragraph of Section IX.H.2.b.KK.3.B is not enforceable. According to SIP section personnel, the purpose for establishing engine operating parameters was to restrict the emissions to the levels listed in Section IX.H.2.b.KK.4 which are 1.62 tons/yr for PM10, 2.38 tons/yr for SO2, and 250 tons/yr for NOX. There are two problems: these emission quantities are not directly enforceable and the means described for enforcing them (monitoring engine parameters) are not practically enforceable.

First, the emission numbers themselves are not directly enforceable. Section IX.H.2.a.J states that the annual emissions at the end of each subsection of Section IX, Part H are not to be used for purposes of determining compliance unless otherwise specified in source specific sections.

Secondly, the SIP requires that engine operating parameter values be established to minimize emissions, but it does not state how the operating parameters are to be established nor does it account for potential engine deterioration and revision of the parameters. In addition, certain engine operating parameters, such as pilot rack settings are very difficult to check without violating safety requirements. Therefore, the requirement is not practically enforceable as currently written.

Because of these shortcomings an alternative to the engine operating parameter was developed in AO, DAQE-126-01. A rolling 12-month NOx emission limit was established in AO. Compliance with the emission limit is demonstrated through quarterly updating of the NOx emission factor for each IC engine and through CEM data for the Gas turbines. The updating for the IC engines is to be done by portable analyzer. The directly monitoring of emissions can identify the problems and ensure minimum emission operation. In addition, AO and the operating permit require that the permittee adequately and properly maintain the engines. The compliance inspectors can examine the operation and maintenance records to assure proper operation and maintenance so that the emissions will be minimized. The conditions in AO and the operating permit fulfill the intended requirements of the SIP, are more stringent than the SIP (to meet WPII guidance), and are practically enforceable. The PM10 SIP provisions in this regard can be considered to have been subsumed by AO and the operating permit conditions. [Comment last updated on 4/17/2001]

**2: Comment on an item originating in DAQE-126-01 regarding**

Pilot fuel: The dual fuel engine is defined as a gaseous fueled engine using the combustion of a tiny spray of liquid diesel fuel to ignite the gas-air mixture in place of a spark plug. The tiny bit of liquid diesel fuel is called pilot fuel because it acts as a pilot light to ignite the gaseous portion of the fuel charge.

The traditional dual fuel engine uses about 95% gaseous fuel ignited by about 5% liquid pilot fuel at a full load normal operation, in terms of heat input. The amount of diesel fuel injected to an engine is fixed by rack setting while the natural gas is supplied based on the loading requirement. The proportion of fuel consumption during normal operation is a feature of each engine's particular design. A dual fuel engine runs pilot fuel during normal operations, as a natural gas engine runs natural gas (spark ignited), and a diesel engine runs diesel. [Comment last updated on 4/17/2001]

**3: Comment on an item originating in SIP Section IX.H.2.a.N regarding permitted source (Source-wide):**

Sulfur content requirement: Utah Air Conservation Rule, R307-203-1 and SIP Section IX.H.2.a.N require that sulfur content of any fuel oil be no more than 0.85 lbs/MMBtu, which is equivalent to 1.69% by weight if heating value (140,000 Btu/gal) and density (7.05 lb/gal) of distillate oil given in AP-42 are used to make conversion. Sulfur content limit of 0.5 % by weight in the permit is more stringent than the rule requirement [Comment last updated on 1/07/1999]

**4: Comment on an item originating in 40 CFR 60 Subpart GG regarding Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

Subpart GG NO<sub>x</sub> Standard and NO<sub>x</sub> limit in AO: The NO<sub>x</sub> standard in Subpart GG is:

$$STD = 0.0075 (14.4)/Y + F$$

where:

STD= allowable NO<sub>x</sub> emissions (percent by volume at 15 percent oxygen and on a dry basis  
Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO<sub>x</sub> emission allowance for fuel-bound nitrogen.

EPA guideline document EMTIC, GD-009 advises to use zero for the value of F for gas turbines that burn only pipeline-quality natural gas. So, the lowest NO<sub>x</sub> limit is 0.0075 percent by volume when Y=14.4. NO<sub>x</sub> limit in AO is 25 ppm<sub>dv</sub> or 0.0025 percent by volume which is more stringent than the Subpart GG standard. Therefore, NSPS standard is subsumed in the AO limit. In order to use equation in 40 CFR Part 60.335(c)(1) to compute the NO<sub>x</sub> emissions, NO<sub>x</sub> limit is expressed in the unit of percent by volume in this permit. [Comment last updated on 4/17/2001]

**5: Comment on an item originating in 40 CFR 60 Subpart GG regarding Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

Subpart GG requirement for the monitoring of fuel-bound nitrogen content of fuel: Subpart GG requires the monitoring of the fuel-bound nitrogen. The pipeline quality natural gas usually has no fuel-bound nitrogen. EPA guideline document, EMTIC GD-009 indicates that there is no good test method to distinguish between fuel-bound nitrogen and other forms of nitrogen such as dissolved air, in fuels used in gas turbines. A Memorandum from EPA Headquarters dated August 14, 1987 regarding Authority for Approval of Custom Fuel Monitoring Schedules Under NSPS Subpart GG states that nitrogen monitoring can be waived for pipeline quality gas since there is no fuel-bound nitrogen and since free nitrogen does not contribute appreciably to NOX emissions. Therefore, Subpart GG requirement for fuel-bound nitrogen content monitoring is not incorporated into the permit. [Comment last updated on 4/17/2001]

**6: Comment on an item originating in 40 CFR 60 Subpart GG regarding Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

Subpart GG requirement related to water injection and emergency fuel: Turbines have low NOX burners to control NOX emissions and there is no water injection. Also, this source does not use an emergency fuel. Therefore, the associated requirements with water injection and emergency fuel in Subpart GG do not apply to the turbines. [Comment last updated on 4/17/2001]

**7: Comment on an item originating in 40 CFR 60 Subpart GG regarding Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

Sulfur content of any fuel burned in any stationary gas turbine: Subpart GG requires that sulfur content in the fuel shall be 0.8 percent or less by weight. This limit is less stringent than the sulfur content limit of 0.05 percent by weight or less required by 40 CFR 72.7 (a)(3). Therefore, Subpart GG sulfur standard is subsumed in the 40 CFR 72.7 (a)(3). [Comment last updated on 5/09/2001]

**8: Comment on an item originating in 40 CFR 60 Subpart GG regarding Three 13.5 MW Gas Turbines (Unit Gas Turbines):**

Sulfur content of any fuel burned in any stationary gas turbine: The facility will be in compliance with the limit of 0.05 percent sulfur by weight as long as it burns pipeline quality natural gas only. The piping in the facility is set up in a way as to only allow pipeline quality natural gas to be combusted in the gas turbines.

Selected text from EPA Federal Register dated October 24, 1997 Page 55461,

Virtually all commercially available natural gas in the U.S. has sulfur content at or below 0.05% by weight. Because of the toxic effects of hydrogen sulfide and its corrosive effect on pipeline and customer equipment, pipelines generally provide pipeline transportation or distribution service only for natural gas with a very low hydrogen sulfide content (e.g., 0.25 to 0.30 grain per 100 standard cubic feet), which results in total sulfur content far below 0.05% by weight. See, e.g., H. Dale Beggs, Gas Production Operations at 204-5, 209-11, and 227 (1984); and 49 CFR 192.475(c) (provision, in U.S. Department of Transportation minimum safety standards for natural gas pipelines, limiting the hydrogen sulfide content of gas stored in pipe-type or bottle-type holders to 0.25 grain per 100 standard cubic feet). [Comment last updated on 5/09/2001]